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| **Sorting**  \*Lesson is adapted from activities in *ThinkMath!,* Harcourt School Publishers, 2008. |
| **Mathematics, Kindergarten** |
| **Materials:**   * Attribute links OR Attribute blocks (OR create construction paper attribute shapes – large and small of the same shapes, different colors of the large and small shapes- use circle, square, rectangle that isn’t a square, and triangle; tape) * “Sorting in Different Ways” activity sheet |
| **TEKS/SEs:**   * K.5 – The student is expected to identify, extend, and create patterns of sounds, physical movement, and concrete objects. * K.6A – use patterns to predict what comes next, including cause-and-effect relationships   **Objective 6 TEKS/SEs (Underlying Processes and Mathematical Tools):**   * K.13A – identify the mathematics in everyday situations * K.13B – solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness * K.13C – select or develop an appropriate problem-solving strategy including drawing a picture, looking for a pattern, systematic guessing and checking, or acting it out in order to solve a problem * K.13D – use tools such as real objects, manipulatives, and technology to solve problems * K.14A – communicate mathematical ideas using objects, words, pictures, numbers, and technology * K.14B – relate everyday language to mathematical language and symbols * K.15 – use logical reasoning; justify thinking using objects, words, pictures, numbers, and technology |
| **Lesson objective(s):** Students will :   * + - Identify a rule used to sort attribute links or blocks     - Sort objects and record the sort     - Sort attribute links or blocks according to given rule |
| **Differentiation strategies to meet diverse learner needs:**   * Problem- solving, inquiry-approach * Hands-on exploration * Collaboration and discussion |
| **ENGAGEMENT - Silent Teach**   * This activity can be done using attribute links or blocks and a document camera, virtual shapes on a Promethean Board, or cutout construction paper shapes with loops of tape on the back taped to a white board or chart tablet * In Silent Teach, neither the teacher nor the students speak at all. Students must have “eyes on the teacher” to figure out what is happening. The teacher selects students to contribute – her choice, no hand-raising or volunteering. Students indicate with thumbs up-down-sideways whether they agree with a student contribution. * Using a secret sorting rule, silently start sorting a collection of attribute links or shapes into two groups. * For example, you could sort the links into one group that has only large shapes, and another that has only small shapes. * After several links/blocks have been placed, silently hand the next shape to a child to place into one of the two groups. Use silent gestures to solicit thumbs-up or down from students, and to approve or correct the child’s decision. Do this several times. * Then break the silence, and have children explain their choices when they contributed, and ask children to describe the sorting rule. |
| **EXPLORATION**  **Part 1**:   * Distribute “Sorting in Different Ways” activity sheet. * Instruct students to sort the shapes into two groups. They will draw the shapes in each group. * Have the students tell you how the objects were sorted.   **Part 2**:   * Distribute another copy of “Sorting in Different Ways” activity sheet. * Write the letters on the board: A, G, E, D, H, C, B, F * Have students sort the letters into two groups. * When sorting letters, there are many attributes students might consider: letters with closed spaces and those without closed spaces; vowels and consonants; letters that are in a certain word or name and those that are not. * When students have completed the page, have them share their sorts and sorting rules with a partner.   **Part 3**:   * Distribute another copy of “Sorting in Different Ways” activity sheet. * At the top of the boxes, have them draw the following: * Have students sort their attribute links by placing all circles in the first group and non-circles in the second group. This activity may be done with other shapes and/or colors. |
| **EXPLANATION**   * Students will explain their thinking and justify their solutions in groups and in whole-class discussion, as well as with drawings, diagrams, and oral explanations. |
| **ELABORATION**   * Have children work in pairs. One student sorts a collection of objects into two groups while the partner guesses the sorting rule. Then they switch roles. Alternatively, children may sort cooperatively. Have children leave the collection sorted so you can check their work. |
| **EVALUATION**   * Observe children as they sort the attribute links/blocks:   + *Are they becoming more confident in choosing a sorting rule?*   + *Do they immediately sort by color, size, or shape or look for other ways to sort the objects?*   + *Do they sort by more than one attribute?* |